

TAB

~~CONFIDENTIAL~~  
~~CONFIDENTIAL~~

Acting Director of Logistics

20 May 1963

Chief, Printing Services Division,  
Office of Logistics

Program of Technical and Procedural Improvements

The Printing Services Division continuously conducts an active program of research into new techniques, procedures, and equipment. There follows a brief description of a number of such projects completed, in process, and planned:

Projects completed.

a. Printing Services Division technicians designed and had specially constructed a unique 70mm camera which, with dual optics, can simultaneously copy a variable sized photograph or transparency and a fixed-size caption. This machine was developed for and is primarily used to produce the prints for the Graphics Register, OCR. The use of this machine permits standardization of negatives for this work which was never possible under the old conventional method. This facilitates print-making from these negatives. The task of fastening prints to captions formerly done by Graphics Register is no longer necessary.

b. The Division had long sought new techniques for speeding up the vast amount of copying work it was called upon to produce. Division representatives therefore worked very closely with the Xerox Corporation in perfecting the Xerox process for high-speed copying. The Division subsequently acquired two Xerox copying machines, one which prints from hard copy and one which prints from microfilm. These machines are in continuous operation producing prints at the rate of 20 feet per minute. These machines are the most modern copying machines which can be obtained and have greatly increased the capability for producing copies of many types of documents. Without the Xerox machines it would have been necessary to increase the PSD photography staff by at least six people to maintain the present rate of production by the old methods.

c. Division technicians quickly realized that there were numerous shortcomings to the Xerox machines even though they were by far the best available equipment for high-speed copying. Two areas of weakness in their operation were noted and when the Xerox Corporation indicated no particular interest in correcting these deficiencies, Division technicians designed and had constructed a document stacker and an automatic trimmer

~~CONFIDENTIAL~~  
~~CONFIDENTIAL~~

downgrading and  
declassification

OL 3 3209

**CONFIDENTIAL**

**SUBJECT: Program of Technical and Procedural Improvements**

for use with these machines. The stacker eliminates the need for a second employee to be assigned to the machine for the purpose of retrieving and stacking the original material after it is copied. The trimmer, which operates as an integral part of the machine, makes unnecessary a complete separate trimming operation previously required to trim prints produced on the Xerox machines. These improvements have resulted in savings of two personnel.

d. In January 1959 FSD installed two tape perforators and tape reading mechanisms on two Linotype machines. This installation made the operation of these two Linotype machines automatic. This conversion to tape was made not only to increase production of Linotype material but more importantly to provide a means for the Division to obtain experience with tape operation of composing machines. This operation is considered the forerunner of the much more extensive use of tape in the Division's typesetting operations.

e. In January 1962 the Division initiated a greatly improved system of printing CS and OO Intelligence Reports. This system utilizes new modern presses which print two sides of the sheet in a single operation. Modern collators are used in lieu of the hand gathering previously done. The improvements in this system resulted in savings in excess of \$5,000 per year in materials and permitted the assignment of five (5) personnel to other work. If these manpower savings had not been realized, FSD would have had to have an increase in personnel of five (5) to handle the greatly increased workloads which followed the occupancy of the headquarters building plant.

f. The Division developed, designed, and had built a device for sorting intelligence reports. This device operates as a part of the gathering machine and automatically counts and sorts into separate bins the number of reports required for each customer on the distribution. This device has completely eliminated the need for personnel to perform this function on gathered reports.

Projects in process.

a. Continuous tone printing. Division technicians are in the process of perfecting a system of continuous tone printing by the conventional offset process. Like numerous other technical improvements which the Division has made, there was no precedence for the development of this process. Continuous tone printing permits the printing of halftone material (pictures) without the use of a screen. This means that once film positives are obtained this material may be transferred directly to the printing plate without

~~CONFIDENTIAL~~**SUBJECT: Program of Technical and Procedural Improvements**

the need of being processed through the camera and its related operations. There are other advantages to the use of this process, particularly where it is necessary to rephotograph previously screened material. When such material is reprinted by the conventional method a moire will result. The continuous tone process is still being developed and it is expected it will eventually be used for all halftone printing done by PSD. Labor savings which will result are difficult to estimate but there will be benefits in quality of work resulting in a better intelligence product.

FOIAb3b1

[REDACTED]

from the mimeograph process to the offset process. Considerable work has been done on this project. The main problem involved is to get the material to be printed prepared on offset masters rather than mimeograph stencils. Heretofore the necessity for making rather extensive editorial changes and typing corrections after the material has been typed has made it impractical to type directly onto the offset master. Therefore in approaching this problem PSD has concentrated upon getting the offset master prepared in a way which would eliminate the need for corrections. Accordingly studies are being made looking toward the preparation of the offset master on typing machines activated by tape.

The study is now primarily concerned with the use of the original 5-channel, all capital letter teletype tape for the typing. This would eliminate typing all together but would require personnel to monitor the machines. A great deal of study has been made of the changes required in existing hardware to make this method of automatic typing possible. A prototype of an apparatus consisting of a copy following device with mark sensing and a tape converter utilizing the 5-channel teletype tape is now under construction. If this prototype proves the system practical, approximately nine production models would be required to do all the typing of the [REDACTED] reports. It is estimated that if this system is developed to the point where it is feasible, the entire preparation of the [REDACTED] reports can be done with only about 60 percent of the typing personnel now required. Format would be greatly improved and there would be ample room for expansion of the amount of material included in the publications.

FOIAb3b1

FOIAb3b1

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

**SUBJECT: Program of Technical and Procedural Improvements**

The printing operation would be done on special presses procured by P&D. These presses will be capable of printing four pages at one time directly from the individual masters [REDACTED]. Thus no platemaking operation would be involved. Binding would be done on a special collator which would collate, staple, and fold in a single operation. Annual savings in printing costs to be realized from this method of printing will be in excess of \$50,000 per year. Funds with which to continue this project are urgently needed.

FOIAb3b1

c. Use of customer-prepared tape for typesetting on the National Intelligence Survey publications. The Division, in cooperation with the Office of Current Intelligence, is conducting experiments with the preparation of tape during the typing of the manuscript for the printing of certain portions of the National Intelligence Surveys. This involves the typing of manuscripts on special Friden Flexwriters which produce a perforated tape. This tape is used to automatically retype subsequent drafts of the text. The purpose of the experiment is to use the final tape thus produced for activating P&D's typesetting machines.

In order to use this tape it is necessary for P&D personnel to insert certain functional codes into the tape while converting it to tape which can be used on the typesetting machines. Experiments have indicated that this can be done by modifying hardware available on the market and proposals for this have been requested from firms capable of doing the job. If this experiment proves to be practical, it will mean that a considerable portion of the typesetting now done on the NIS publications will be done automatically from by-product tape furnished by the customers. This is in addition to the advantages of automatic retyping of manuscripts that will occur to the customer through the use of the Flexwriter. Funds with which to continue this project are urgently needed.

d. Photocomposition. An exceptionally important project recently started is a study of all of the Division's typesetting operations to determine the advantages of converting any portion of it to photocomposition. This study will take into account the printing processes involved and the most economical type of composition for these processes.

The most important aspect of this project is to explore the possibility of obtaining clean input tape (free of errors) for activation of high-speed photocomposing devices.

~~CONFIDENTIAL~~

~~CONFIDENTIAL~~

**SUBJECT: Program of Technical and Procedural Improvements**

Experiments will include efforts to incorporate vertical spacing codes which will produce film properly spaced for page make-up. This type of composition would not only eliminate conventional page make-up operations but the error-free input would greatly reduce the proofreading and correcting burden. A composing machine has been selected and a special keyboard has been designed by Division technicians for which proposals have been requested. Funds will be required to continue this project.

Studies planned.

a. Study of all Agency publications now produced from typewriter composition to determine feasibility of other methods of composition in order to reduce bulk and effect economies in printing, binding, storage, and mailing.  
This study is to be a complete review of all Agency publications now produced from typewriter composition to determine those which could be more economically set in type, either metal or film, or typed in small type, and printed in greatly condensed form in order to reduce presswork and binding. This will involve determining the feasibility of having the customer office prepare tape to be furnished to PBD for conversion to tape to be used on the typesetting machines or to be used in typing offset masters in small type. This project is similar to that mentioned in paragraph c above for the NIS publications but it applies to all offices of the Agency who will be preparing material for publications printing.

It also differs from the above project in that the majority of the publications involved would require "straight" composition. This in turn would be easier material to convert from the customer tape to a printing tape and the study would determine the "hardware" best suited for this type of tape conversion. Large savings in printing costs are possible through such a method of printing this material. Funds will be required for hardware.

b. Study to determine advantages of converting the printing of NIS Gazetteers from IBM punched cards to tape.  
This study is to be undertaken in cooperation with the Automatic Data Processing Staff and is to determine the feasibility of converting the printing of the NIS Gazetteers from IBM punched cards to magnetic or paper tape. This study would determine the need for and advantages of having all of the Gazetteer information stored in the IB/I computers

~~CONFIDENTIAL~~



**SUBJECT: Program of Technical and Procedural Improvements**

and upon its retrieval for printing purposes to have the computer produce tape which could be used in the printing of the Gazetteers. Problems involved in such a conversion are accents and the fact that all of the Gazetteers to date have been printed from IBM punched cards and are stored in this form. A method of converting this information to magnetic tape would be required. Considerable advantage is seen for such a conversion, however, as it is believed that names required to be printed from the stored material could be withdrawn from the computer and a tape created which could be used in printing these names. Considerable format improvement would be made by this type of printing.

c. Use of Agency computers as a printing medium.  
Studies are to be conducted in cooperation with the ADPS to determine whether or not information stored in Agency computers may be withdrawn in such a way as to be ready for printing. This study will determine the possibility of extracting properly justified and hyphenated tapes which may be used in the printing process and the use of improved computer printout for either direct or photo offset printing.

d. Cartographic print orders. Approximately one man in PSD's Plant No. 2 is utilized full time setting type for the Cartography Division's print orders. These are names used in map making. Experiments are to be conducted to see if it is practical to have the Cartography Division, when typing the copy, perforate a tape which can be used to activate the PSD photocomposing machine. Manpower savings would result.

25X1A9a

**Distribution:**

- Orig & 1 - Addressee
- 1 - OL/AS/BAFB
- 1 - OL/PSD (Official)

25X1A9a

OL/PSD: [REDACTED] Lab/3221 (20 May 63)